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rial on long journeys." According to Lambert's "History of the New Haven Colony," the Connecticut Indians called parched corn pounded, *yeokheag;* parched corn made into hominy, *roucheage.* The only other Indian names I have found for parched corn are: Caddo, *kishwanto;* Cherokee, *kungwisitung;* Choctaw, *tanchi vluvsha;* Mohawk, *ounouquit-zerleh;* Muskhogee, *achiaposiki;* Seneca, *onaershewfquaw.* The Quichuas of Peru call toasted maize *cancha. Pinole* is an Aztec word applied to any kind of grain or seeds parched and ground before being made into dough. I am unable to determine whether the word parched was used as synonymous with toasted or whether it refers to popped, but I suspect the former.

SOUTH FRAMINGHAM, October 4, 1894.

Japanese Characeae—I.

BY T. F. ALLEN.

These observations will be continued as collections come to hand, and for the present no attempt will be made to systematize the species.

1. CHARA FRAGILIS Desv. A slender form of this species, differing in no particular from forms collected in other countries. The cortex is tolerably regular; the primary series most prominent, the papillae undeveloped. The bracts are unilateral and equal the oogonium in length, the latter immature.

2 and 3. CH. CORONATA A. Br. Three collections of this species have been made, all in the vicinity of Tokio; one form seems to be longer, with long leaves (probably from deeper water). It does not differ from the ordinary forms, even the minute tuft at the apex of the leaves, composed of the terminal cell with two or three elongated nodal bracts, is similar; this form is microcarpa, microptila, unilateralis. The coronula of the oogonium is short with spreading tips, the subtending bracts only half the length of the oogonium, the oospore small, 540 long, 306 broad.

4. NITELLA JAPONICA Allen, Bull. Torr. Club, **20**: 120; **21**: *pl. 188.* Province of Tokio.

5. N. MUCRONATA TENUIOR A. Br. This beautiful form was collected in the province of Ise, and doubtless is to be referred to this variety. The leaves (6) are at times 3-divided (flabellata), and now and then the sub-terminal is septate, thus connecting it with *N. gracilis* Kutz. The whole plant is very slender, leaves 170 in diameter, mucro 34 in diameter at base. The oogonia are usually solitary in both divisions of the leaves; the oospore averages 306 long, 270 broad, with 6 striae; the surface reticulated, the reticulae 2 to 7 in diameter (easily seen with a half-inch lens).

6. N. JAPONICA Allen; from province of Ise.

7. N. ORIENTALIS sp. nov.

Nos. 7, 8 and 9, though variable, may belong to the same species. Plant 6–8 inches long, repeatedly branched, the verticils often densely tufted when young. Leaves 3–4-divided, terminals very slender, of variable length (elongated or very short); oogonia one (or two) at a node; coronula short and small, but the apical cells much longer than the sub-terminal, which are small and disk-shaped. Antheridium 275 in diameter, oospore 306 to 340 long by 270 broad (in our specimens immature).

8. Plant 8 to 10 inches high, very slender, with remote verticils (spreading), consisting of 6 to 8 leaves. Leaves diarthrodactylae, four times divided, terminating in a mucro; the ultimate segments unequal, at times elongated and slender, at times quite short (brachydactylae); the leaf 200 diameter, the first segment 156, the second (102) to 150, the third (88) to 142 the terminal 88 to 95 in diameter, the mucro 55 to 60 long.

Oogonia clustered (2 to 3) at the nodes of the leaves, coronula not elongated, cells connivent, 60 broad, 48 high, and oospore 272 to 306 long, 170 to 240 broad; (measurements of several mature oospores, give length and breadth as follows, 340 by 292, 353 by 306, 360 by 292, 368 by 292, 368 by 306, 368 by 319); with 8 rather blunt ridges, rarely 7 or 9; surface minutely roughened with granules, which are quite coarse and more prominent at one or two points on the shell, usually near the apex.

9. Plant very delicate, often minute, 3 to 4 inches long; leaves 3–4-divided; stem diameter 102, leaf first node 75, second 60, third 36, fourth 34, mucro 70 long, very slender. Antheridia only 75

in diameter; oogonia clustered, oospore 272 to 306 long, 170 to 240 broad; surface too immature to examine. This plant occurs very sparingly among the collections of number 8, which I have received; it is probably a reduced form of that species; its extreme delicacy is shown by the measurements of stem and leaves. These forms 7, 8 and 9 belong to the section *Polyglochin* or diarthrodactylae — brachydactylae — subdivision of *Nitella*. The oogonia being clustered (not isolated at the nodes of the leaf) place the species near the three American sub-species, *microcarpa* A Br., *Glaziovii* Zell, and *megacarpa* Allen, all doubtless forms of one species for which *microcarpa*, the oldest name, is very inappropriate. These species as well as *oligospira* possess oospores with a reticulated membrane, quite distinct from *N. orientalis* Allen; indeed *N. Japonica* Allen is to be included in this group, it was erroneously referred by me to the *oligospira* section, but later collections show distinctly clustered oogonia; the cells of the coronula are however elongated, placing it in alliance with the true *N. polglochin* series, which is separated by coronula characteristics from our *N. orientalis*, which has a short coronula. Illustrations of these new Japanese species will follow later when a series of eight plates can be prepared.

10. NITELLA PAUCICOSTATA sp. nov. Monarthrodactyla, furcata, homoeophylla, gymnocarpa, dioica, apiculata, membrane of oospore granulated. (Series of *N. opaca* Ag.)

Plant 2 to 6 inches high, branched from the base, diffuse and flaccid. Verticils remote, at length becoming crowded above, bearing about eight leaves and usually short peduncles (shoots) which fruit abundantly when very short, close to the base of the verticils. Leaves once divided, often long and slender (bright green and flaccid in our specimens); terminal segments three, about as long as the first segment of leaf, abruptly pointed (like *N. opaca*). Stem 366 to 500 in diameter; leaf first segment 146 to 425 usually 300 diameter; second segment, 170 to 220 usually 170 diameter. Fruit clustered at the node of the leaf; oogonia 2–3, globular; coronula minute, evanescent; oospore about 408 long by 340 broad (400 by 340, 408 by 380, 440 by 374, 440 by 360, 440 by 370); membrane of oospore very minutely roughened; ridges only 4 (or 5); antheridia 488 in diameter.

This species was collected near Tokio, and adds another to the multiplying *opaca* series. In reviewing the species of this series which have roughened oospores, we find that only *N. obtusa* Allen has apiculate leaves; the others have acuminate leaves. From *N. obtusa* the Japanese species is easily distinguished by its small size and small leaves and by its smaller oospore with very few striae or ridges.

Note on Chara sejuncta A. Br.

By T. F. Allen.

Chara sejuncta A. Br. is one of our common plants, but so variable that extreme forms might well be taken for distinct species. The stem is at times covered with long spines; the bracts on the nodes of the leaves as long as or longer than the oogonia; the lowest (naked) segment of the leaf (often a distinctive specific character) is also variable as to length and size. The size of the oospore also, usually the most reliable diagnostic feature of a species, varies greatly. Like other species, the stems may be elongated, slender and diffusely branched, or condensed, stout and simple; of this latter feature no note need be made, but of the size of the oospore and of the length of the bracts in relation to the size of the oogonia, and of the spines to the diameter of the stem, a word is timely. A Mexican form collected recently by Mr. Pringle gives us spines one-half the diameter of the stem in length, lowest leaf node equaling the stipules, anterior bracts one-half the length of the oogonium, oospore with 12–13 ridges, 535 long, 300 broad; antheridium 190 in diameter. These measurements are peculiar and hitherto unique.

This summer I have collected in Lake Champlain and Saratoga Lake (in both localities), always in company with *Chara gymnopus elegans* A. Br., a form with oospores 756 long by 480 broad, having 11 ridges, the bracts quite unilateral, the anterior one-third to one-half the length of the oogonium, the posterior minute and not noticed, the naked node as long as the upper row of stipules; the spines of the stem numerous and minute. The plants are short and compact, of a curiously smooth naked appearance, especially in Lake Saratoga, where they are not so encrusted as in Lake Champlain. This form should be designated as *Chara sejuncta* A. Br., forma compacta, sub-inermis, microptila, unilateralis macrospora.